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FOR IN

GENTLEMEN:

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WHITE OAK. *Quercus alba, L.*	East M
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BASKET OR COW OAK. *Quercus Michauxii, Nutt.*	Sou
BURR, MOSSY-CUP, OR OVER-CUP OAK. *Quercus macrocarpa, Michx.*	Nort
POST OR IRON OAK. *Quercus obtusiloba, Michx.*	East M

Circular No. 4

U. S. Department of Agriculture.

FORESTRY DIVISION.

FOR INFORMATION OF RAILROAD MANAGERS.

Washington, D. C., December 1887.

GENTLEMEN:

Hoping that you have appreciated the manner in which the Forestry Division of this Department has, by its first Bulletin, attempted to call the attention of Railroad managers to the need of economy in the use of forest supplies, allow me, in furtherance of such economy, to present the following statements, which may be of interest to you.

In the use of oak for cross-ties, the specifications of most roads, especially those of the South, call for White Oak (Quercus alba), a timber which is sought for also by almost every industry employing oak, and which is therefore rapidly decreasing and approaching comparative exhaustion. Meanwhile, millions of feet of Tan-bark or Chestnut oak (Quercus prinus) are rotting in the forests, after being stripped of their bark, because their value for cross-ties is not known or is underestimated in many regions.

This lack of appreciation of the value of this wood causes not only waste of the wood itself, but waste of the bark also, as without ready demand for the wood, it does not pay to peel the larger limbs.

From information furnished by Dr. Mohr, of Mobile, Alabama, an expert in forestry statistics and agent of this Department, it appears that from the line of the Louisville and Nashville Railroad, south of the Tennessee River, between 5,000 and 7,000 cords of bark are shipped annually, involving the felling in that district alone of from 10,000 to 13,000 trees which are consigned to useless destruction, while capable of yielding not less than 100,000 first-class railroad ties.

Dec. 1887

ɔf the timber of Chestnut Oak experiences are reported from that posts of this oak outlast those made of White Oak, partly peeled. One reliable report states that Tan-Bark Oak posts elve years, while those of White Oak in the same construction sooner. Reports from Railroad Companies, where this wood is ɔm 5 to 10 years, while the reports for White Oak give from , all the oaks which are known as "white oaks," named below, e road-bed.

ıay be used for railroad construction interchangeably, and do not in the qualities most essential for a good railroad tie, the he Census Report, may serve to show. The column of specific ı regard to adhesion of spikes, while the column of indentation ce to cutting of rail. The position as to quality, in comparison is indicated by numbers in parenthesis.

RANGE.	WEIGHT per Cu. Ft.	SPECIFIC GRAVITY.	Resistance to Indentation.	ELASTICITY.	Transverse Strength.
ɔf the Rocky ountains.	46.35	0.7470 (**4**)	3388 (**6**)	97089 (**2**)	905 (**4**)
astern and in ky, Tennessee, Alabama.	46.73	0.7499 (**3**)	3688 (**5**)	125473 (**1**)	1031 (**2**)
ıtheastern.	50.10	0.8039 (**2**)	3725 (**4**)	96373 (**3**)	1118 (**1**)
hern U. S.	46.45	0.7453 (**6**)	3730 (**3**)	92929 (**4**)	982 (**3**)
of Rocky ountains.	52.14	0.8367 (**1**)	4415 (**1**)	83257 (**5**)	872 (**6**)

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Forestry

As to the lasting quality of the timber of Chestnut Oak experiences are reported from Cullman, Alabama, to the effect that posts of this oak outlast those made of White Oak, partly probably because the timber is peeled. One reliable report states that Tan-Bark Oak posts were found to be sound after twelve years, while those of White Oak in the same construction had to be replaced several years sooner. Reports from Railroad Companies, where this wood is used for ties, give their life as from 5 to 10 years, while the reports for White Oak give from 3 to 12 years. In the average, all the oaks which are known as "white oaks," named below, last between 7 and 8 years in the road-bed.

That the oaks of this class may be used for railroad construction interchangeably, and do not offer any appreciable differences in the qualities most essential for a good railroad tie, the following table, compiled from the Census Report, may serve to show. The column of specific gravity will allow an estimate in regard to adhesion of spikes, while the column of indentation allows an estimate as to resistance to cutting of rail. The position as to quality, in comparison with the other kinds mentioned, is indicated by numbers in parenthesis.

	RANGE.	WEIGHT per Cu. Ft.	SPECIFIC GRAVITY.	Resistance to Indentation.	ELASTICITY.	Transverse Strength.
WHITE OAK. *Quercus alba, L.*	East of the Rocky Mountains.	46.35	0.7470 (**4**)	3388 (**6**)	97089 (**2**)	905 (**4**)
CHESTNUT OR ROCK-CHESTNUT OAK. *Quercus prinus, L.*	Northeastern and in Kentucky, Tennessee, and Alabama.	46.73	0.7499 (**3**)	3688 (**5**)	125473 (**1**)	1031 (**2**)
BASKET OR COW OAK. *Quercus Michauxii, Nutt.*	Southeastern.	50.10	0.8039 (**2**)	3725 (**4**)	96373 (**3**)	1118 (**1**)
BURR, MOSSY-CUP, OR OVER-CUP OAK. *Quercus macrocarpa, Michx.*	Northern U. S.	46.45	0.7453 (**6**)	3730 (**3**)	92929 (**4**)	982 (**3**)
POST OR IRON OAK. *Quercus obtusiloba, Michx.*	East of Rocky Mountains.	52.14	0.8367 (**1**)	4415 (**1**)	83257 (**5**)	872 (**6**)
CALIFORNIA WHITE OAK. *Quercus Garryana, Dougl.*	Pacific Coast.	46.45	0.7453 (**5**)	3846 (**2**)	81109 (**6**)	879 (**5**)

From these figures it would seem, that contrary to the accepted notion, the White Oak, PAR EXCELLENCE, is inferior in all particulars to the Chestnut Oak, and in general not superior to any of the others.

Trusting that the above information will be of value to you, and that, so far as your conditions enable you to make use of it, you will do so, and thus to some extent aid in economizing timber supplies,

Yours respectfully,

NORMAN J. COLMAN,

Commissioner of Agriculture.

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